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पारिभाषिक शब्दावली

भाग 3 बटरफ्लाई वाल्व

(पहला पुनरीक्षण)

**Glossary of Terms for Valves and
Their Parts**
Part 3 Butterfly Valves

(*First Revision*)

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भारतीय मानक ब्यूरो

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FOREWORD

This Indian Standard (Part 3) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Chemical Engineering Plants and Related Equipment Sectional Committee had been approved by the Mechanical Engineering Division Council.

This glossary of terms has been prepared for the guidance of manufacturers and users of valves to assist them in the correct interpretation of the common terms used in the valve industry and trade.

Figures are given after the definitions solely for the purpose of identifying the various parts of the different types of valves illustrated. The illustrations are merely examples and the purpose is not to indicate specific designs of components to which the definitions are applicable. The names of parts given in the key to figures shows the reference number used in the figures.

This standard was first published in 1974. The present revision has been taken up with a view to incorporating the modifications found necessary as a result of experience gained on the use of this standard. Also, in this revision, the standard has been brought into the latest style and format of Indian Standard, and references to Indian Standards, wherever applicable have been updated. BIS certification marking clause has been modified to align with the revised *Bureau of Indian Standards Act, 2016*.

This standard on glossary of terms for valves and their parts is one of the series of standards on Socketing. Other parts of this standard are:

- (Part 1) Screw-down stop, check and gate valves and their parts
- (Part 2) Plug valves and cocks and their parts

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded-off value should be the same as that of the specified value in this standard.

Indian Standard

GLOSSARY OF TERMS FOR VALVES AND THEIR PARTS

PART 3 BUTTERFLY VALVES

(First Revision)

1 SCOPE

1.1 This standard defines types of, and parts for, butterfly valves.

1.2 It is not within the scope of this glossary to describe the type or form of body end connections that is, flanged, screwed, welded, etc. However two

types of valves are used in conjunction with pipe flanges, and these are as follows:

- a) Those connected directly to the pipe flanges [see Definition 01(a)]; and
- b) Those clamped between pipe flanges [see Definition 01(b)].

2 TERMINOLOGY

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
i)	01	Butterfly valve	A valve in which a disk is turned substantially through 90° from the closed to the open position, on an axis transverse to that of the valve ports.

TYPES OF BUTTERFLY VALVE

- a) Double flanged valve A valve having flanged ends for connection to pipe flanges by individual bolting (see Fig. 1).
- b) Wafer valve A valve for clamping between pipe flanges using through bolting (see Fig. 2).
 - 1) Single flange type *see Fig. 3A*
 - 2) Lug type *see Fig. 3B*
 - 3) Flangeless type *see Fig. 3C*

SERVICE APPLICATIONS

- ii) 02 Service applications This is dependent upon the control of flow required. Valves may be suitable for:
 - a) Tight shut-off service A valve primarily intended for isolation purposes, and which does not leak in the closed position.
 - b) Low — Leakage — Rate Service A valve which has an allowed leakage in the closed position.
 - c) Regulating service A valve intended for regulating purposes and which, may have a clearance between the disk and the body in the closed position. (a) and (b) may also be used for regulating service.

BUTTERFLY VALVE PARTS

- iii) 03 Body The main part of the valve in which the flow of fluids is controlled.
 - a) Body end port The inlet or outlet opening at the end of the valve body.
 - b) Body end That part of the body which is connected to the plant or installation of which the valve forms a part.
 - 1) Upstream end That part of the valve body which is on the upstream of the disk.

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
		2) Downstream end	That part of the valve body which is on the downstream of the disk.
		c) Body seat port	The opening in the body seat.
		d) Body seat	A seat with which the disk face makes contact when the valve is closed. When the body seat is formed in the body, a valve is described as having an 'integral seat'. When the body seat is formed on the body seat ring, a valve is described as having a 'renewable seat'.
		e) Body boss	A boss formed on the exterior of the body to provide sufficient metal to permit a tapped or other connection, for example, air release, drain, lifting, locking, etc.
		f) Body tapping	A tapping in the body to permit an external connection.
		g) Shaft boss	A boss formed on the extension of the body to support the shaft.
		h) Mounting flange or bracket	A flange or bracket provided on the exterior of the body for the attachment of the valve operating mechanism.
		j) Body foot	A bracket formed on the body to support the valve.
iv)	04	Body components	Those parts which are associated, but not integral, with the body.
		a) Body seat ring	The part, metallic or non-metallic, of a renewable seated valve, made separate from the body and secured in it, which forms the body seat.
		b) Body seat retaining ring	A ring to secure the body seat ring in the body.
		c) Body seat retaining ring fixing	Comprising studs, set screws, nuts or other components used to secure the body seat retaining ring to the body.
		d) Body seat facing	A metallic or non-metallic deposit on the body or the body seat ring, of material different from them, which forms the body seat.
		e) Body plug	A plug for sealing a tapped hole in a body boss or body tapping [see Definitions 03(e) and 03(f)].
		f) Shaft bearing	A bearing inserted in the shaft boss [see Definition 03(g)] to support the shaft.
		g) Body stop	A stop, which may be adjustable, to limit the travel of the disk in the body.
		h) Body liner	The component forming the body seat ring [see Definition 04(a)], but extending through the valve body and which may cover all or part of the body end facing.
		j) Body seat ring bolting	Comprising studs, set screws, nuts, or other components used to secure the body seat ring to the body.
v)	05	Shaft cover	A cover used for the sealing of the non-driven end of the shaft.
vi)	06	Shaft cover components	Those parts which are associated, but not integral, with the shaft cover.
		a) Shaft cover seal	Any form of seal between the shaft cover and the body.

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
		b) Shaft cover bolting	Comprising bolts, stud-bolts, studs, setscrews and nuts used for the body/shaft cover connection.
vii)	07	Shaft sealing	Any form of seal, which may be adjustable or non-adjustable, between the shaft and the body.
viii)	08	Shaft sealing components	Those parts which are associated with the shaft sealing.
		a) Shaft seal	The component which forms the shaft sealing.
		b) Stuffing box	(Applicable only to adjustable forms of shaft sealing). The part of the body, or a separate component attached to it, which provides an annular space around the shaft contain the gland and the gland packing.
		c) Lantern ring	A spacing ring inserted in the stuffing box.
		d) Stuffing box tapping	A tapping on the side of the stuffing box leading to the space provided by the lantern rings.
		e) Stuffing box boss	A boss on the exterior of the stuffing box to provide sufficient metal to permit the tapping referred to in Definition 08(d).
		f) Stuffing box bolting	Comprising bolts, stud-bolts, studs, set screws and nuts used to secure the stuffing box, where separate, to the body. This bolting may be extended to form gland bolting.
		g) Stuffing box gasket	A component for effecting a fluid-tight joint between the body and a separate stuffing box.
		h) Gland	A part which retains and/or forms a means of compressing the packing. Glands are usually of the screwed or bolted type, of one-piece or two piece design.
		j) Screwed gland	The type of gland which is adjusted by a nut which engages the stuffing box.
		k) Gland nut	The nut of a screwed gland.
		m) Bolted gland	The type of gland which is adjusted by bolts, studs, set screws, etc, attached to the body or stuffing box.
		n) One-piece gland	A bolted design in which the gland is integral with the gland flange.
		p) Two-piece gland	A bolted design in which the gland is separate from the gland flange, generally having a self-aligning feature.
		q) Gland flange	The flange of a bolted one-piece or two-piece gland.
		r) Gland bush	A bush which is inserted in a gland.
		s) Gland bolting	Comprising bolts, eye-bolts, stud-bolts, set screws, and nuts used with bolted glands.
		t) Gland packing	Compressible material inserted into the stuffing box.
		u) Shaft seal retainer	The component which retains a non-adjustable shaft seal.
		v) Shaft seal retainer bolting	Comprising bolts, stud-bolts, studs, set screws, and nuts used to secure the shaft seal retainer to the body.
		w) Shaft seal retainer gasket	A component for effecting a fluid-tight joint between the shaft seal retainer and the body.

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
ix)	09	Disk	The generic term for the closing component, on which the disk face is formed, or to which the disk facing ring or disk seal is secured.
	a)	Disk hub	A boss or housing formed on the disk to provide sufficient metal for the accommodation of the shaft.
	b)	Disk face	The sealing surface on the disk or on the disk facing ring.
x)	10	Disk components	Those parts which are associated, but not integral, with the disk.
	a)	Disk facing ring	A ring, which may be of different material from the disk, and which is secured to it, on which the disk face is formed.
	b)	Disk seal	A renewable ring made separate from the disk and secured to it, which makes contact with the body seat facing when the valve is closed.
	c)	Disk seal retaining ring	A solid or segmented ring to support the disk seal and secure it to the disk.
	d)	Disk seal retaining ring bolting	Comprising studs, set screws, and nuts used for securing the disk seal retaining ring to the disk.
	e)	Disk centralizing device	A device for centralizing the disk with respect to the body seat along the line of the shaft(s).
	f)	Disk locking device	A device for locking the disk in the open or closed position.
	g)	Disk facing ring bolting	Comprising studs, set screws, nuts or other components used to secure the disk facing ring to the disk.
xi)	11	Shaft	That part which supports and/or transmits movement to the disk.
	a)	Through shaft	A shaft extending completely through the disk.
	b)	Stub shafts	Two separate shafts, one or both of which transmits movement to the disk.
	1)	Driving end stub shaft	Stub shaft to which operating mechanism is connected.
	2)	Non-driving end stub shaft	Other stub shaft than to which operating mechanism is connected.
	c)	Shaft fixing	Comprising the components used to secure the shaft to the disk. Examples of these are : taper pins, dowels, keys, bolts, studs, and nuts.
xii)	12	Indicator	A device on the valve showing the position of the disk.
xiii)	13	Thrust bearing	A bearing to take end thrust which is caused by forces acting along the line of the valve shaft(s).
	a)	Thrust faces	Faces which are acted upon by the end thrust.
	b)	Thrust washer	A washer, normally on the end of the non-driven shaft, which enables end thrust to be transmitted to thrust bearings.

3 TERMS OTHER THAN STANDARD USED IN THE VALVE INDUSTRY TO DESCRIBE PARTS OF BUTTERFLY VALVES LISTED IN THIS GLOSSARY

<i>Sl No.</i>	<i>Standard Term</i>	<i>Reference No. of Term</i>	<i>Term other than Standard</i>
(1)	(2)	(3)	(4)
i)	Body end port	03 a	Bore
ii)	Body seat port	03 c	Throat
iii)	Body stop	04 g	Disk stop, adjustable stop, adjustable stopper
iv)	Butterfly valve	01	Throttle valve
v)	Disk	09	Blade, door, vane
vi)	Disk seal	10 b	Resilient seat ring, sealing ring
vii)	Disk seal retaining ring	10 c	Retaining ring, seal clamp ring
viii)	Shaft boss	03 g	Trunnion boss
ix)	Shaft seal retainer	08 u	Endplate, gland ring
x)	Stub shaft	11 b	Trunnion
xi)	Through shaft	11 a	Spindle
xii)	Thrust bearing	13	Thrust collar
xiii)	Thrust washer	13 b	Thrust disk, thrust pad
xiv)	Wafer valve	01 b	Solid ring valve

Key to Fig. 1 and Fig. 2 for Butterfly Valves Arranged in Order of Part References

<i>Sl No.</i>	<i>Part Reference</i>	<i>Name of Part</i>	<i>Reference No. of Term</i>	<i>See Fig.</i>
(1)	(2)	(3)	(4)	(5)
i)	1	Body	03	1, 2
ii)	2	Body end port	03 a	1, 2
iii)	3	Body end	03 b	1
iv)	4	Body seat port	03 c	1, 2
v)	5	Body boss	03 e	1
vi)	6	Body tapping	03 f	1
vii)	7	Shaft boss	03 g	1
viii)	8	Mounting flange	03 h	1
ix)	9	Body foot	03 j	1
x)	10	Body seat ring	04 a	1
xi)	11	Body seat retaining ring	04 b	1
xii)	12	Body seat retaining ring fixing	04 c	1
xiii)	13	Body plug	04 e	1
xiv)	14	Shaft bearing	04 f	1, 2
xv)	15	Body liner	04 h	2
xvi)	16	Body seat ring bolting	04 j	1
xvii)	17	Shaft cover	05	1, 2
xviii)	18	Shaft cover seal	06 a	1, 2
xix)	19	Shaft cover bolting	06 b	1, 2
xx)	20	Shaft seal	08 a	1, 2
xxi)	21	Stuffing box	08 b	1, 2

Sl No.	Part Reference	Name of Part	Reference No. of Term	See Fig.
				(1) (2) (3) (4) (5)
xxii)	22	Lantern ring	08 c	1
xxiii)	23	Stuffing box tapping	08 d	1
xxiv)	24	Stuffing box	08 e	1
xxv)	25	Gland	08 h	2
xxvi)	26	Bolted gland	08 m	1
xxvii)	27	One-piece gland	08 n	1
xxviii)	28	Gland flange	08 q	2
xxix)	29	Gland bush	08 r	1
xxx)	30	Gland bolting	08 s	1, 2
xxxi)	31	Gland packing	08 t	1, 2
xxxii)	32	Shaft seal retainer	08 u	1, 2
xxxiii)	33	Shaft seal retainer gasket	08 w	1, 2
xxxiv)	34	Disk	09	1, 2
xxxv)	35	Disk hub	09 a	1, 2
xxxvi)	36	Disk face	09 b	1, 2
xxxvii)	37	Disk facing ring	10 a	1
xxxviii)	38	Disk seal	10 b	1
xxxix)	39	Disk seal retaining ring	10 c	1
xl)	40	Disk seal retaining ring bolting	10 d	1
xli)	41	Through shaft	11 a	2
xlii)	42	Stub shafts	11 b	1
xliii)	43	Shaft fixing	11 c	1, 2
xliv)	44	Indicator	12	1, 2
xlv)	45	Thrust bearing	13	2
xlvi)	46	Thrust faces	13 a	2
xlvii)	47	Thrust washer	13 b	1, 2
xlviii)	48	Disk centralizing device	10 e	1
xlix)	49	Disk locking device	10 f	1

NOTE — The figures are pictorial only and are solely for the purpose of identifying the various features and components of the different types of valves indicated, and it is not the intention that any feature or component shown in any one illustration should be confined to the particular type of valve on which it may appear.

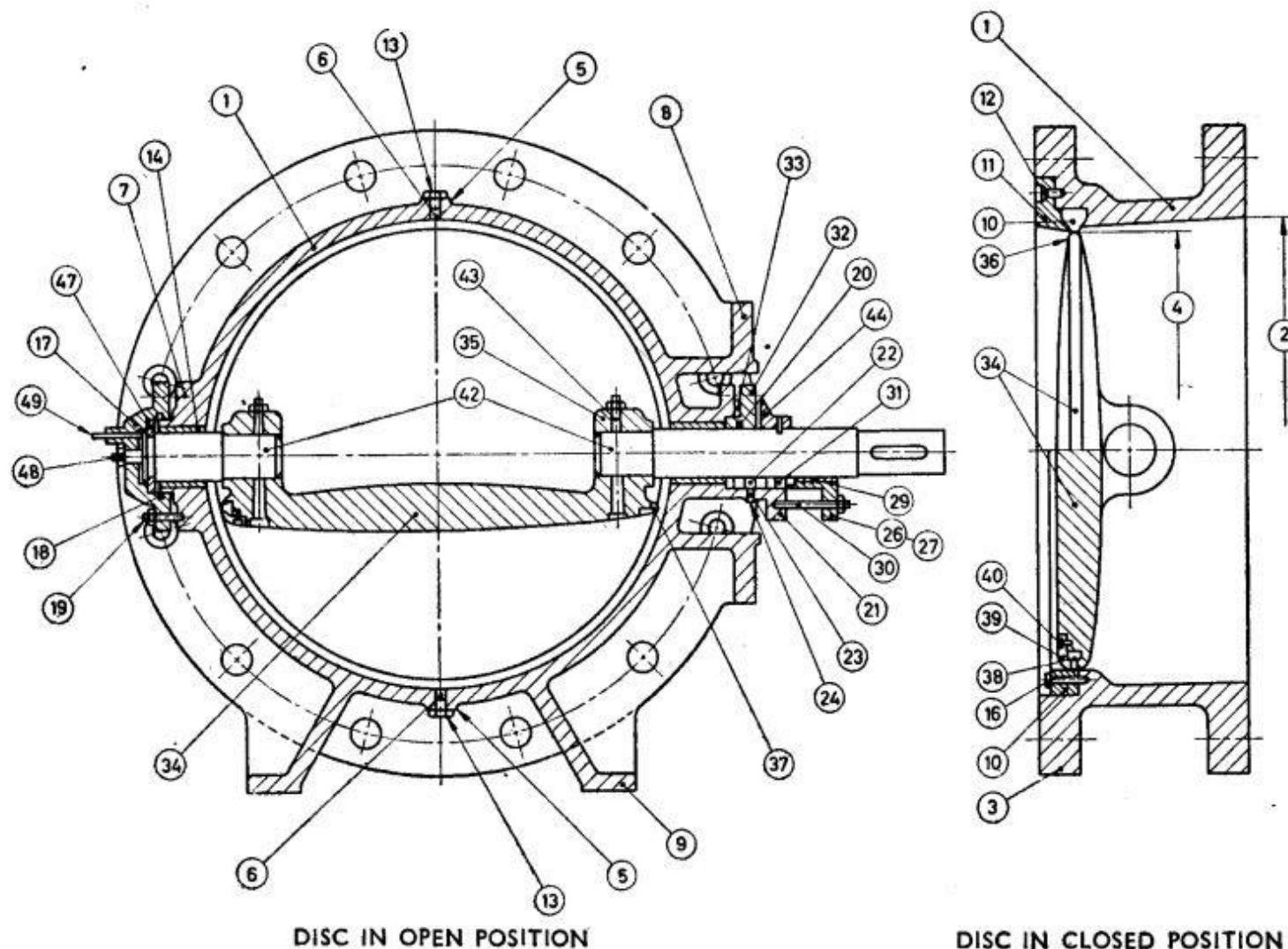


FIG. 1 TYPICAL FLANGED TYPE BUTTERFLY VALVE

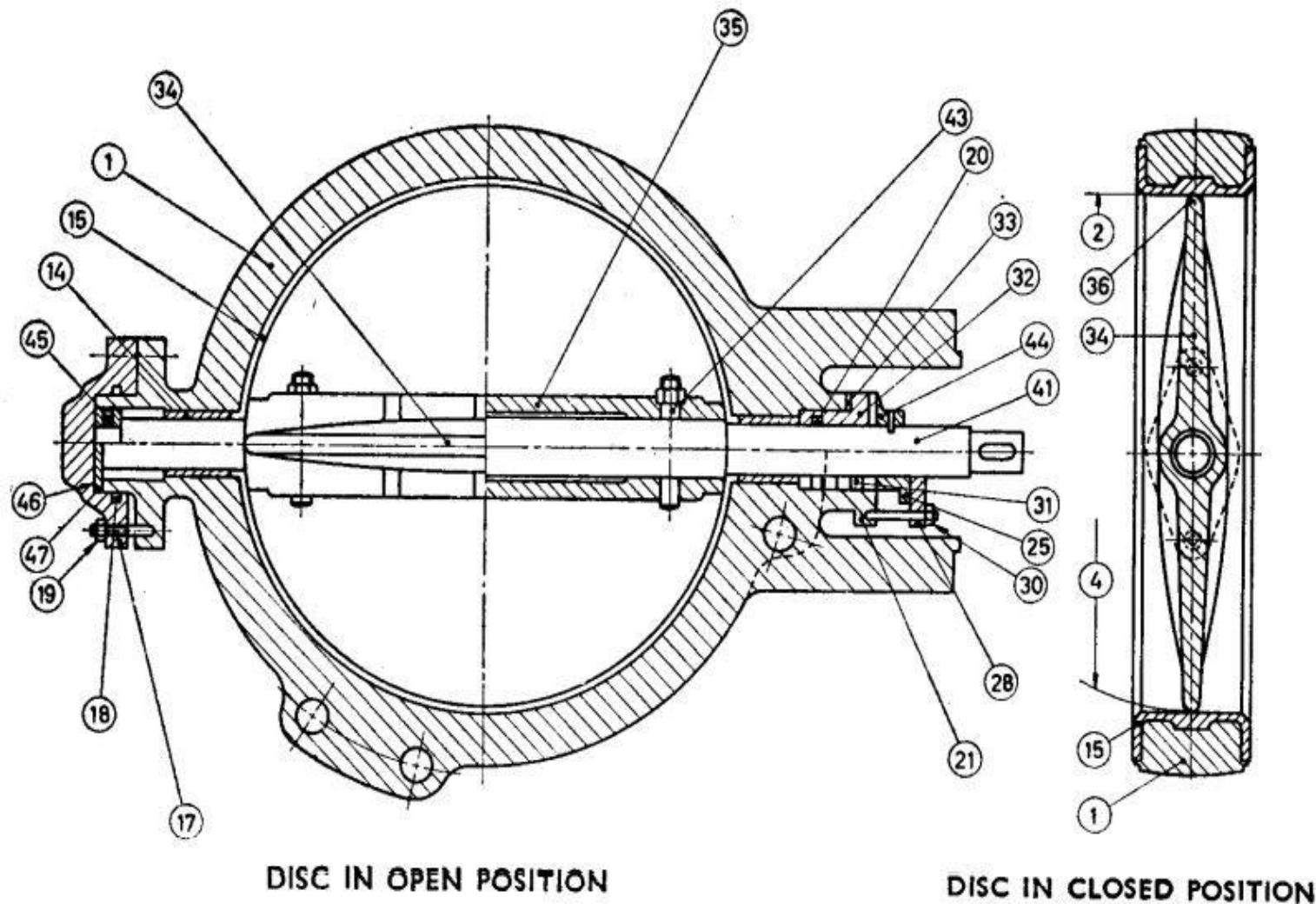
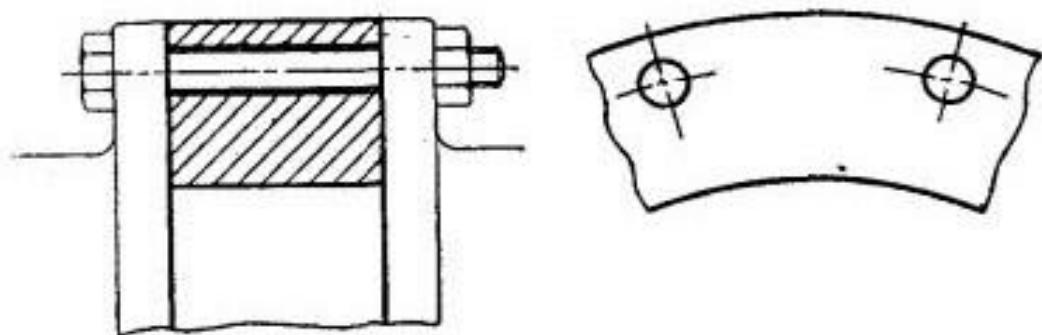
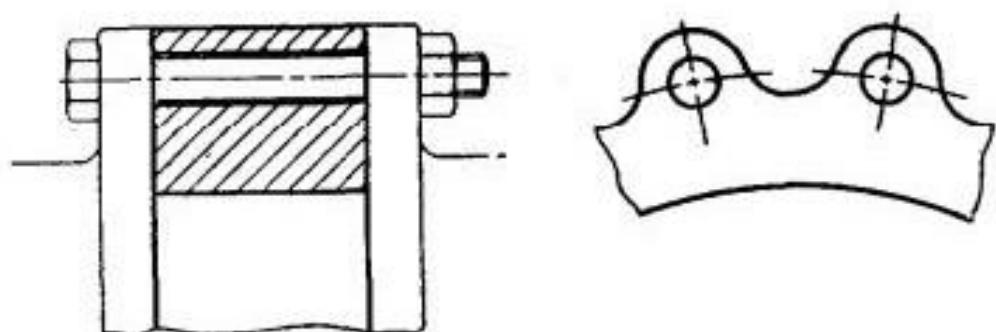


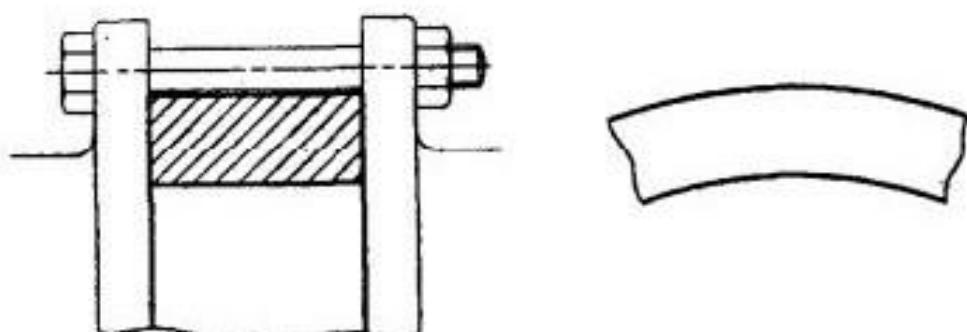
FIG. 2 TYPICAL WAFER TYPE BUTTERFLY VALVE



3A SINGLE FLANGE TYPE



3B LUG TYPE



3C FLANGELESS TYPE

FIG. 3 TYPES OF WAFER BUTTERFLY VALVES

ANNEX A
(Foreword)

COMMITTEE COMPOSITION

Chemical Engineering Plants and Related Equipment Sectional Committee, MED 17

<i>Organization</i>	<i>Representative(s)</i>
In Personal Capacity (<i>199 Haridwar Road, Nirman Vihar, Dehradun</i>)	SHRI AMAR KUMAR JAIN (<i>Chairperson</i>)
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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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